UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

August 17, 2001

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Mr. Robert G. Abrams
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1299 Pennsylvania Ave., N.W.
Washington, DC 20004

Re: United States v. Caterpillar, Inc.,
Civil Action No. 98-2544

Dear Sirs,

This letter responds to a request from a Consent Decree engine manufacturer for the United States' agreement on an approach to the generation of emission "credits" now for potential later use as compensation for the use of certain Auxiliary Emission Control Devices ("AECDs") starting in October 2002, assuming the parties can reach agreement on, and the Court approves, a Consent Decree amendment permitting this approach.

On January 19, 2001, EPA responded to requests from the Consent Decree engine manufacturers for guidance on their ability to use various AECDs on engines subject to the October 2002 requirements of the Consent Decree ("Pull-ahead engines"). In that letter we made it clear that while certain suggested AECDs might well be appropriate and approvable under the Consent Decrees, others were problematic and raised serious concerns for the Agency because we believe the companies may not have needed the AECDs had they utilized all

reasonably available means to meet the Consent Decree emission requirements starting in October 1998 when they signed the Decrees. However, we also discussed our mutual interest in continuing to allow the sale of new engines, notwithstanding our concerns with the problematic AECDs, but only under carefully limited circumstances and subject to various reservations, including the possible use of appropriate emissions payments.

On June 5, 2001, the United States advised the Consent Decree manufacturers that it would not consent to an amendment to the Consent Decrees that would delay the October 2002 date for introduction of engines meeting the Pull-ahead requirements. At that time, we encouraged the Consent Decree manufacturers to continue to keep us informed of their progress toward meeting these requirements. As we noted in that letter, the Pull-ahead is one of the core provisions of the Consent Decrees and is intended to partially redress the excess emissions from alleged defeat device equipped engines sold prior to the Consent Decrees or pursuant to the compliance schedule of the Decrees. Since the January 19th letter, we have had many meetings and discussions with the various Consent Decree manufacturers, monitoring the progress being made to comply with the Pull-ahead requirements. The information we have received indicates that significant progress can and is being made, especially where companies are instituting a high level of sustained and well-targeted engineering effort to design engines, including control strategies, that achieve the lowest possible levels of emission effects from the subject AECDs.

Since sending the June 5 letter, we have received a request to establish an emissions calculation methodology in case emissions payments are later needed -- and allowed -- with respect to the use of problematic AECDs on Pull-ahead engines. As you should be aware, the United States' goal is compliance with the Consent Decrees. In other words, our goal is to ensure that the technologies needed to comply with the Pull-ahead requirements on the Federal Test Procedure and the supplemental tests – without the use of defeat devices – are developed, demonstrated, and deployed.

The use of emission payments for problematic AECDs will not be allowed and the AECDs will not be approved, if they are needed due to a failure to utilize adequate time, resources, effort, and technology. Thus, in evaluating proposed AECDs, EPA will look to see, among other factors, whether the manufacturer has pursued diligent and continuous efforts to reduce the need for the problematic AECDs and has achieved results in this regard consistent with the utilization of all reasonably available technology given the time between the January 19th letter and the date of the certificate application. Where a manufacturer can demonstrate the following, we will consider allowing the use of such problematic AECDs with consideration given to avoiding the creation of competitive advantages for non-compliance, subject to other conditions set forth in EPA's January 19th letter, and with an appropriate emissions payment:

! The problematic AECD is needed for engine or vehicle protection,

- The problematic AECD is activated only during operating conditions that pose a danger to the engine or vehicle,

- The problematic AECD limits emissions to the lowest levels achievable within the engine class,

- There are no other reasonable means the manufacturer could have employed to eliminate or limit the use of the problematic AECD given the status of development efforts as of January 19, 2001, and

- The manufacturer has employed adequate resources, time, effort, and technology to limit the use of the problematic AECDs since EPA's letter of January 19th.

Where a manufacturer is unable to make the above demonstration with respect to a problematic AECD, but is able to show compliance with the Pull-ahead emission limits on the required test cycles, EPA is willing to consider allowing the sale of those engines in conjunction with emission credits and monetary penalties. Any combination of emission credits and monetary penalties in this case must be sufficiently high as to avoid the creation of competitive disadvantages for those companies who have employed adequate time, resources, effort, and technology.

It should therefore be clear that while EPA may allow the sale of engines that utilize problematic AECDs, any such resolution would need to carefully address the goals of compliance with the Consent Decrees and the redress of excess emissions from the alleged defeat devices. Of course, should a manufacturer be unable to demonstrate compliance with the Pull-ahead limits, the Consent Decree allows the sale of those engines upon payment of an NCP based on the compliance level of the engine.

In the event that some form of emissions payment and/or alternate monetary penalty structure is approved, the enclosure to this letter provides guidance on how EPA would calculate emission "credits" from specific on-engine measures to reduce emissions from pre-Consent Decree or Interim engines. EPA is not approving or making any final determinations regarding any AECDs for Pull-ahead engines at this time. Rather, if an agreement is later reached, the United States will recommend to the court that any emission credits accrued since July 1, 2001, and calculated in accordance with the method described in the Enclosure be available to apply against any subsequently agreed AECD-compensating emission reductions.

Given the short time available until certification of these engines, it is critical that all Consent Decree manufacturers continue and intensify their efforts to comply in full with the Pull-ahead requirements. Further, please advise EPA of your earliest availability to meet with EPA staff to discuss in detail the current and projected status of your technology, including the

AECDs to be used in your Pull-ahead engines, if you have not already done so. EPA wishes to continue to meet frequently to review design changes and test data to ensure that EPA is fully and timely informed of your progress. If you have any questions, please do not hesitate to contact us, Bruce Buckheit at (202) 564-2260, or Thomas Carroll at (202) 514-4051.

Sincerely,

Sylvia K. Lowrance
Acting Assistant Administrator
Office of Enforcement and Compliance Assurance

John Cruden
Acting Assistant Attorney General
Environment & Natural Resources Division

Enclosure

cc: Karl Simon, EPA
Susan O'Connor, ARB
Kathleen Nolan, ARB

Enclosure

Lifetime NOx Emissions Benefit (tons) = (VMT * CF * N * K) *
((HD * ΔEH) + (UD * ΔEU))

Terms common to all emission credit programs:
CF = Conversion Factors based on latest data for Mobile 6 (bhp-hr/mi):

Urban Bus:	4.68	MHDDE:	2.25
HHDDE (8a, 8b):	2.97	LHDDE:	1.23

(**Note:** all service class designations are based on service class chosen at time of certification)

N = Number of engines participating in the emission reduction program

K = 1.101 x 10E-06 (conversion from grams to tons (2000 pounds))

UD = 1 - HD

Program: Early Low NOx Reflash
Description: Engine manufacturer provides incentives to engine owners to allow their engine computers to be reflashed with the Low NOx Rebuild calibration (or calibration with equivalent emission performance) at some time prior to engine rebuild. Emission credit is for NOx only.

The emission test to measure emission impacts of the Low NOx early reflash ("Early Low NOx Reflash Test Cycle") is presumed to be the Euro III (with Euro III weighting) as described in the Consent Decree unless the manufacturer submits and EPA approves an alternate test cycle and/or emission weighting that accurately assesses the emission impact of the manufacturer's cruise strategy.

VMT = Vehicle Miles Traveled between time of Early Low NOx reflash and time of engine rebuild (rebuild is defined in the Consent Decree).

Notes:

- **!** Manufacturer must keep records of engine serial number and mileage at the time of Early Low NOx Reflash for each engine in the program. If mileage data cannot be obtained for some of the vehicles reflashed, manufacturer may estimate mileage at time of Early Low NOx Reflash for those vehicles from warranty records and/or other data which correlates mileage with vehicle age.
- **!** Manufacturer must submit for EPA approval data and a model to predict expected mileage at rebuild for each service category of its engines participating in the Early Low NOx Reflash. If EPA disapproves the data, EPA will state what are the deficiencies in the data,

and the manufacturer may either submit additional data to address EPA's concerns, or where no additional data are available, propose alternative ways to address EPA's concerns.

- For engines that are not rebuilt before scrappage, the manufacturer must use the 30-year mileage value from the table below (based on Mobile 6) as the "Mileage at Engine Rebuild" and provide the data and analysis used to determine the portion of the fleet that does not undergo a rebuild.
- If the manufacturer does not have records to distinguish whether a heavy-heavy duty engine undergoing the Early Low NOx Reflash is installed in a Class 8a or 8b truck, the manufacturer must assume that all these engines are installed in Class 8a trucks, unless the manufacturer provides and EPA approves some other basis to distinguish the truck application, such as ratings or hp typically installed in 8a or 8b trucks.
- Emission levels and HD must be determined for each rating that is part of the Early Low NOx Reflash.

Average Lifetime VMT for HDDEs including Scrappage

Vehicle Lifetime	Cumulative Miles MHDDE	Cumulative miles Urban Bus	Cumulative miles HHDDE 8a	Cumulative Miles HHDDE 8b
30-year	**262,759**	**567,580**	**515,849**	**802,729**

HD = Percent of VMT when heavy-heavy or medium-heavy operates under conditions similar to the Early Low NOx Reflash test cycle.

ΔEH = Emission Level of the original calibration when operating on the Early Low NOx Reflash Test Cycle minus the Emission level of the Low NOx Rebuild calibration when operating on the Early Low NOx Reflash Test Cycle

ΔEU = 0

Program: Certification of Interim engines to lower Euro III limits

Description: Manufacturer certifies specific engines produced on or after the date of this letter, through October 1, 2002 to Euro III certification levels less than 6.0 g/bhp-hr for heavy heavy duty engines and 4.0 g/bhp-hr for medium heavy duty engines. The ratio of NTE to Euro III levels must remain unchanged from the existing requirements (e.g. if the Euro III level is reduced to 5.0 g/bhp-hr, then the engine must meet an NTE limit of 5.8g/bhp-hr).

VMT = Mean Lifetime vehicle miles traveled including scrappage. Use Mobile 6 inputs (from the table above for the Low NOx Reflash), or submit to EPA for approval data and calculations used to determine this value for each engine category.

HD = percent highway VMT (i.e, percent of VMT when the engine family operates on Euro-III timing map).

ΔEH = Current CD NOx Euro III limit minus NOx Euro III FEL established for this project

ΔEU = Current CD NOx FTP limit minus NOx FTP FEL established for this project

Notes:

- For each engine family that will accumulate credits with this program, the engine manufacturer will submit a statement agreeing the Euro III certification levels of the engines will apply as if they were limits under the Consent Decree and acknowledging that these engines will be required to meet the certified Euro III limits for purposes of certification, warranty, selective enforcement auditing, administrative recall, and for the purposes of determining stipulated penalties under Paragraph 116 (b) of the Consent Decree. The statement will be submitted for each MY 2001 and 2002 Credit Plan engine family at time of certification to EPA's Office of Transportation and Air Quality (OTAQ) with a copy to the Director, Air Enforcement Division (2242A) Environmental Protection Agency.
- For each engine family that will accumulate credits with this program, the engine manufacturer will submit a report according to the directions, and containing all the elements described in 40 CFR Part 86.098-23 (h) (3) (i through j) where applicable (excluding the provisions for trading). The report should be identified as pertaining to an Emission Offset Credit Project.